

duced, as the chemical actions producing these decay or are exhausted; the consequent result being well seen in the effect of the investing fluids produced (906, 941, 954).

1004. Thus, as De la Rive has said, any list of metals in their order should be constructed in reference to the exciting fluid selected. Further, a zero point should be expressed in the series; for as the electromotive power may be either at the anode or cathode (1028, 1040), or jointly at both, that substance (if there be one) which is absolutely without any exciting action should form the zero point. The following may be given, by way of illustration, as the order of a few metals, and other substances in relation to muriatic acid:

Peroxide of lead,
Peroxide of manganese,
Oxide of iron,
PLUMBAGO,
Rhodium,
Platinum,
Gold,
Antimony,
Silver,
Copper,
Zinc:

in which plumbago is the neutral substance; those in italics are active at the cathode, and those in Roman characters at the anode. The upper are of course negative to the lower. To make such lists as complete as they will shortly require to be, numbers expressive of the relative exciting force, counting from the zero point, should be attached to each substance.

^| vii. *Active Voltaic Circles and Batteries without Metallic Contact*

1005. There are cases in abundance of electric currents produced by pure chemical action, but not one undoubted instance of the production of a current by pure contact. As I conceive the great question must now be settled by the weight of evidence, rather than by simple philosophic conclusions (787), I propose adding a few observations and facts to show the number of these cases, and their force. In the sixth part of these Researches¹ (April 1834) I gave the first experiment, that I am aware of, in which chemical action was made to produce an electric current and chemical decomposition at a distance, in a

¹ *Philosophical Transactions*, 1834, p. 426.